Technical Guidelines: Building One Health Collaboration at the Human-Animal-Environmental Interface

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Cunningham AA, Scoones I, Wood JLN. 2017 One Health for a changing world: new perspectives from Africa. Phil. Trans. R. Soc. B 372: 20160162. http://dx.doi.org/10.1098/rstb.2016.0162

OBJECTIVES

- **EXPLAIN IMPORTANT TERMS**
- II. DESCRIBE THE ONE HEALTH IMPERATIVE
- REVIEW GLOBAL, REGIONAL, NATIONAL AND LOCAL ONE HEALTH PLATFORMS AND FRAMEWORKS
- IV. DESCRIBE STRATEGIES AND TECHNICAL GUIDELINES FOR MULTISECTORAL COLLABORATION
- **THE ROAD AHEAD**



I. IMPORTANT TERMS



What is One Health?

One Health is a <u>collaborative</u>, multidisciplinary, and multisectoral approach that can address urgent, ongoing, or potential health threats at the human-animalenvironment interface at subnational, national, global, and regional levels.

FAO, OIE, WHO, 2019. A Tripartite Guide to Addressing Zoonotic Diseases in Countries

Definitions

https://www.etymonline.com/word

Communication

"common, communiality or sharing" Collaboration

"to labor together"

Coordination

"to set in order, arrange"

Definition: Multisectoral Approach

 Multisectoral approach (MSA) refers to <u>deliberate collaboration</u> <u>among various stakeholder groups</u> (e.g., government, civil society, and private sector) <u>and sectors (e.g., [animal and public]</u> health, environment, and economy) to jointly achieve a policy outcome.

Salunke S1, Lal DK. Multisectoral approach for promoting public health. Indian J Public Health. 2017 Jul-Sep;61(3):163-168. doi: 10.4103/ijph.IJPH_220_17.

Definition: Zoonotic Diseases (zoonoses)

Infectious diseases that can be spread between animals and humans; can be spread by food, water, fomites, or vectors.

FAO, OIE, WHO, 2019. A Tripartite Guide to Addressing Zoonotic Diseases in Countries

Human Nature

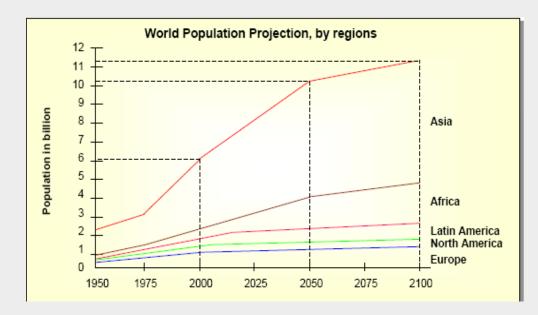
"...can we possibly refuse to admit that there exist in each of us the same generic parts and characteristics as are found in the state?

(Plato's Republic)

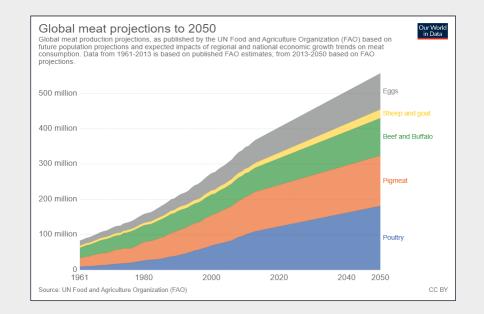
II. THE ONE HEALTH IMPERATIVE



Increasing Human Population Growth and Demand for Animal Protein

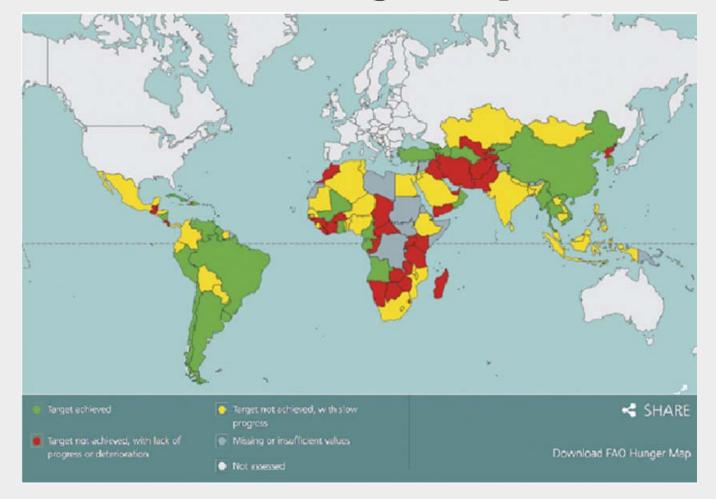


(Deichner, 1995)

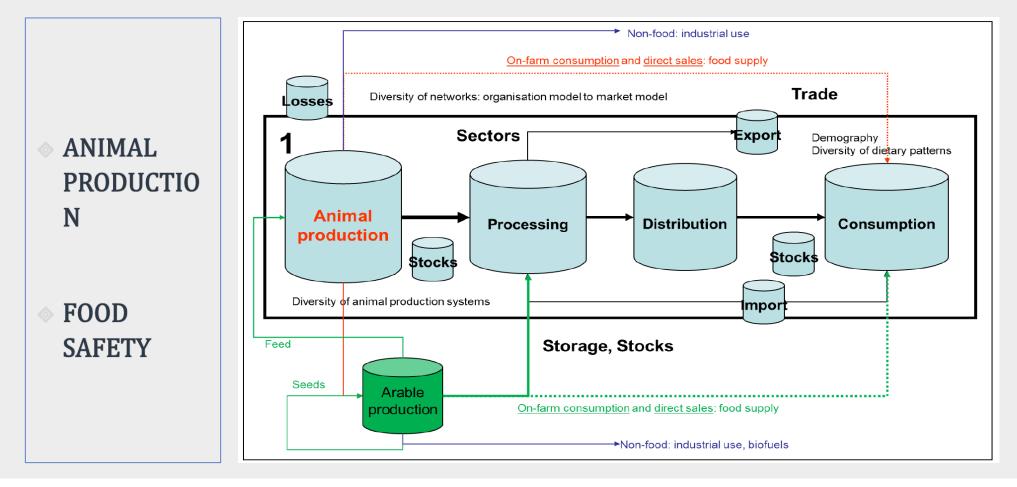


http://www.fao.org/faostat/en/

FAO World Hunger Map, 2015



THE VETERINARY ROLES IN THE FOOD SYSTEM (Bonnet et al, 2011)

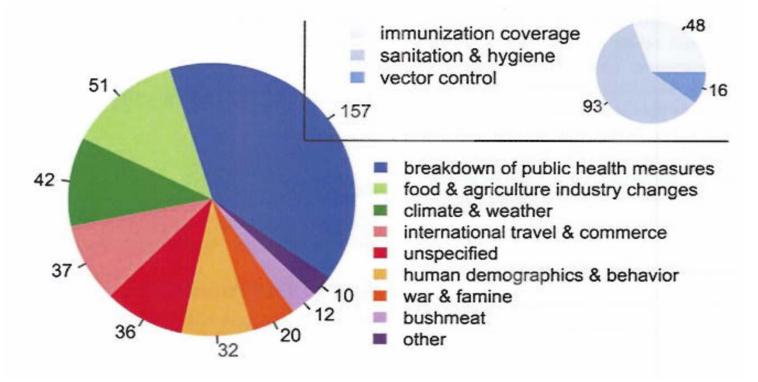


THE VETERINARY WORKFORCE (Bonnet et al, 2011)



Agriculture, Food and Bushmeat Links to Public Health Events (n=400)

(Bogich TL, Chunara R, Scales D, Chan E, Pinheiro LC, Chmura AA, et al. (2012) Preventing Pandemics Via International Development: A Systems Approach. PLoS Med 9(12): e1001354. https://doi.org/10.1371/journal.pmed.1001354)



Drivers of Emerging Diseases (Burgos and Slingenbergh, 2011)

Social

- Demand for resources
- Different priorities for
- needs
- Different perceptions of risk

Technical

- Globalization
- Climate Change
- Land Use
- Intensive animal production
- Interspecies jumps

Institutional

- Gaps at the animal-humanenvironmental interface
- Systems to deal with technical, social and institutional challenges and barriers

Disease Emergenc e

The One Health Imperative

- Figurative description of the multi-scale, multi-level process of pandemic emergence
- Example: Poultry
 "new house"
 syndrome

GLOBAL EMERGENCE: PANDEMIC A Global Travel and Trade LOCALIZED EMERGENCE B. Encroachment into Wildlife Habitat Increased Contact with Wildlife Wildlife Hunting and Trade PRE-EMERGENCE: 'SPILL-OVER Introduction of Livestock Increased Human Population Deforestation and Landuse Change Biodiversity of Wildlife Hosts and Their Pathogens

Bogich et al, 2012

Bangkok Statement's Global Vision for Action (2018 Prince Mahidol Award Conference)

This envisioned global action:

- Facilitates a full, universal, and sustained <u>compliance with the IHR (2005)</u> and aggressively adopts strategies and approaches that <u>recognize that multisectoral responses are vital</u>.
- Invests in <u>building an evidence base</u> to improve our understanding of the drivers of disease emergence, including climate change, environmental degradation, and urbanization, and for tracking progress toward control of these threats.
- 3. Invests in and promotes "<u>whole of society</u>" approaches to ensure preparedness strategies and capabilities are in place to detect, respond to, and mitigate the effects of emergent health threats across the entirety of society by establishing and strengthening relationships between health and nonhealth sectors.
- 4. Builds a workforce in all relevant fields, including in health, agriculture, food production, and environment sectors, that demonstrates the core competencies necessary to meet the future challenges posed by these emerging threats.

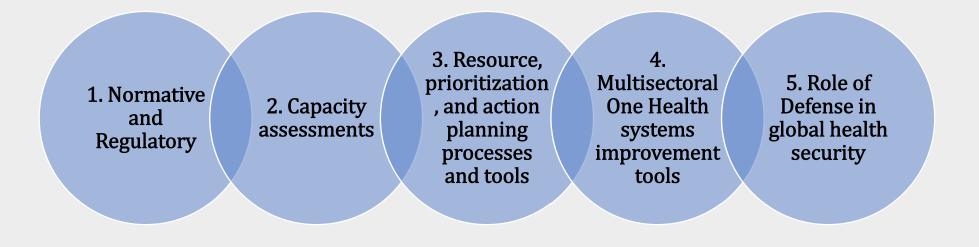
III. GLOBAL, REGIONAL, NATIONAL AND LOCAL ONE HEALTH PLATFORMS AND FRAMEWORKS

...THE ENABLING ENVIRONMENT...



Classification of Global One Health Platforms and Frameworks

Adapted: Machalaba et al. Institutionalizing One Health: From Assessment to Action. Health Security. Volume 16, Supplement 1, 2018. Mary Ann Liebert, Inc. DOI: 10.1089/hs.2018.0064

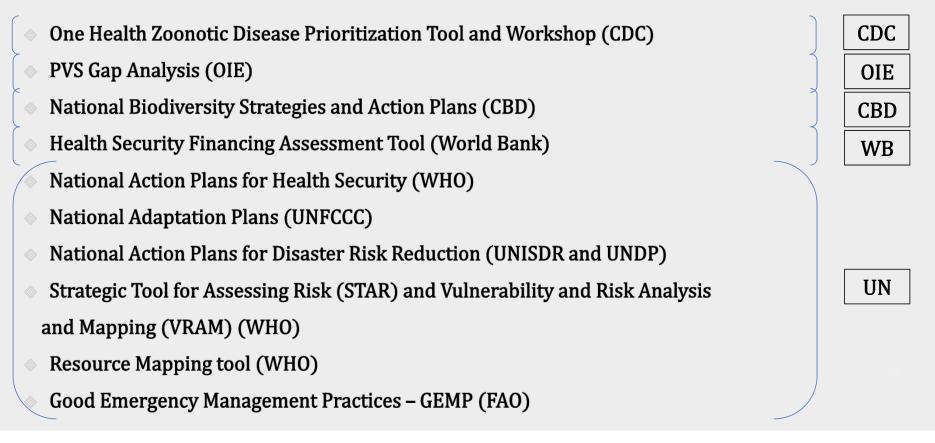




2. Capacity assessments (Adapted: Machalaba et al. 2018) Performance of Veterinary Services (PVS) Evaluations, including PVS OIE **Evaluations for Aquatic Animal Health Services (OIE)** Joint External Evaluation (JEE) for the IHR Monitoring and Evaluation Framework (WHO) Surveillance Evaluation Tool (FAO) UN **Epidemiology Mapping Tool (FAO)** Laboratory Mapping Tool (FAO) National capacity audits NAT.

3. Resource, prioritization, and action planning processes and tools

(Adapted: Machalaba et al. 2018)

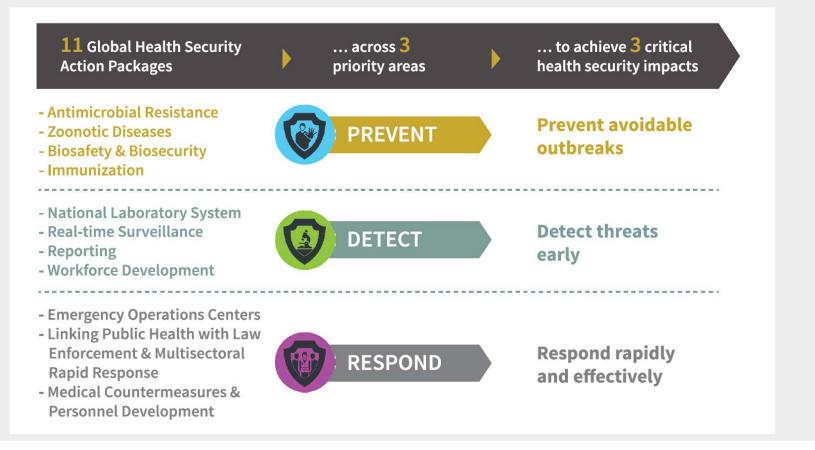


4. Multisectoral, One Health systems improvement tools (Adapted: Machalaba et al. 2018)

OIE-IHR-PVS National Bridging Workshops (WHO and OIE) WHO One Health Systems Mapping and Analysis Resource Tool Kit (OHSMART UMN/ **USDA** University of Minnesota and US Department of Agriculture) **One Health Assessment for Planning and Performance (OH-APP)** Multisectoral Coordination Mechanism Self-Assessment Tool (USAID USAI Preparedness & Response project and DAI Global Health) Taking a Multisectoral, One Health Approach: A Tripartite Guide to FAO, OIE. Addressing Zoonotic Diseases in Countries (FAO, OIE, WHO) WHO

The Global Health Security Agenda Action Packages

(GHSA, 2017. https://www.ghsagenda.org/docs/default-source/default-document-library/global-health-security-agenda-2017progress-and-impact-from-u-s-investments.pdf)



5. The role of defense in global health security

(GHSA, 2017. https://www.ghsagenda.org/docs/default-source/default-document-library/global-health-security-agenda-2017-

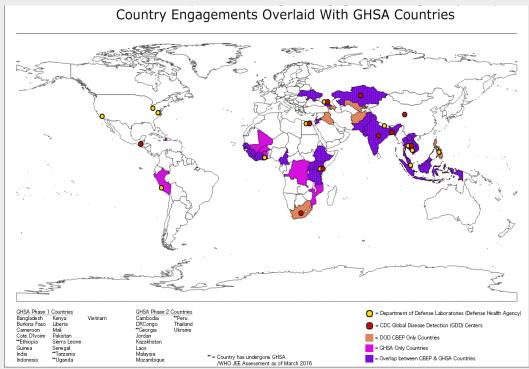
progress-and-impact-from-u-s-investments.pdf)

Objectives:

- Threat reduction
- Bio-surveillance
- Biosecurity

Unique capabilities:

- Logistics
- Command and control
- Complex contingency operations



 $https://www.google.com/url?sa=i&source=images&cd=&ved=2ahUKEwj3zev5y7XlAhV0JKwKHbepACwQjRx6BAgBEAQ&url=https%3A%2F%2Fglobalbiodefense.com%2F2016%2F03%2F29%2Fmapping-globalhealth-security-agenda%2F&psig=A0vVaw3mVE1w_i0KVoCo30SyGPg6&ust=1572030457084409$

IV. STRATEGIES AND TECHNICAL GUIDELINES FOR MULTISECTORAL COLLABORATION



Strategies for One Health Technical Collaboration

(Yasobant et al. 2019. https://doi.org/10.1016/j.onehlt.2019.100096)

Level-based collaboration:

- Examples: <u>Population level</u> surveillance and AMR studies
- Example: Individual level FETP/FETPV capacity development

Solution-based collaboration:

- Example: China H7N9 risk assessment, disease prevention and control
- Examples: Uganda Trypanosomiasis research; Sierra Leone Animal Health Clubs

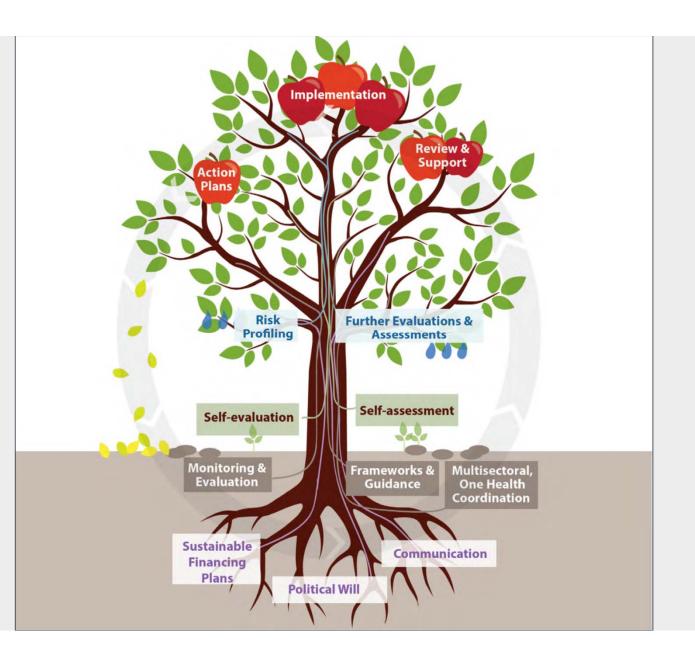
Third-party-based collaboration:

• Example: Kenya One Health coordinating unit under the Zoonotic Disease Unit

Taking A Multisectoral, One Health Approach:

A Tripartite Guide to Addressing Zoonotic Diseases in Countries

FAO, OIE, WHO. 2019

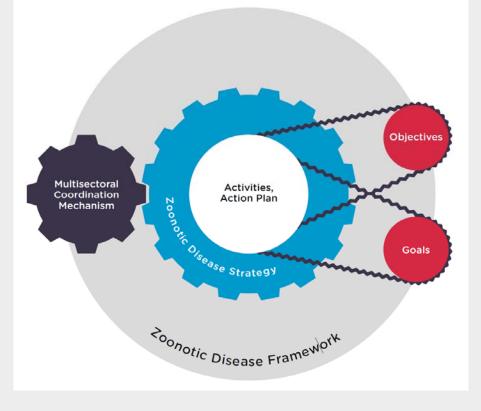


Tripartite Zoonotic Guide: Specific activities

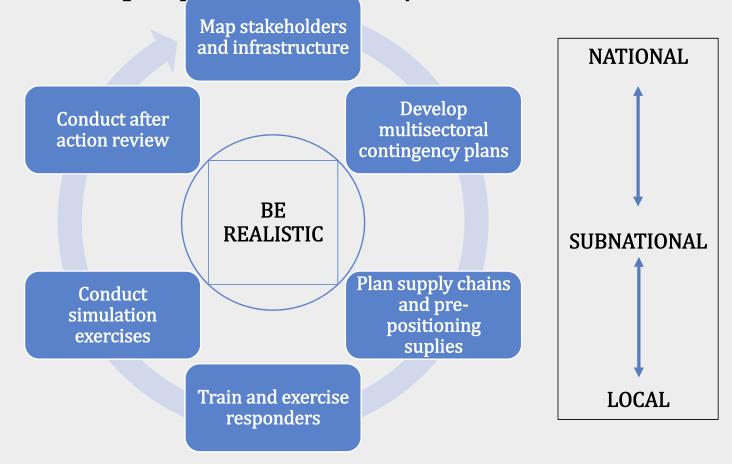
1. Strategic planning and emergency preparedness	2. Surveillance for zoonotic diseases and information sharing	3. Coordinated investigation and response
4. Joint risk assessment for zoonotic disease threats	5. Risk reduction, risk communication and community engagement	6. Workforce development

1. Strategic planning and emergency preparedness...1/2

- Be prepared <u>before</u> an event
- Develop a zoonotic disease strategy and action plan using the multisectoral coordinating mechanism (MCM)
 - 1. Clear (SMART) objectives and goals
 - 2. <u>Realistically define "how" to</u> <u>collaborate</u>
 - 3. Define activities based on priorities and needs
 - 4. Measure against performance indicators

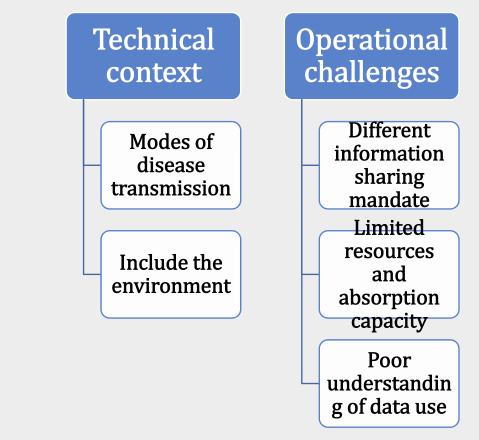


1. Strategic planning and emergency preparedness...2/2

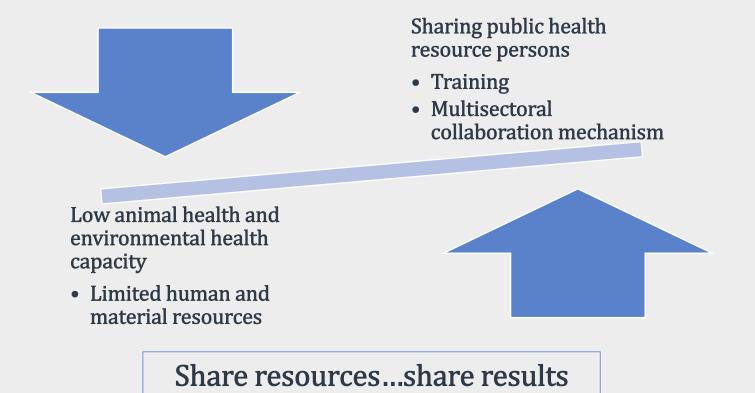


Surveillance for zoonotic diseases and information sharing...1/3

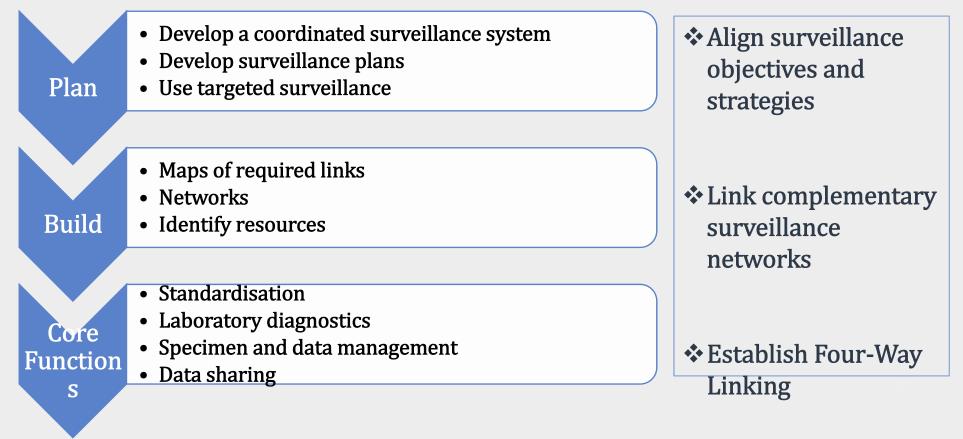
- Link risk-based surveillance to joint risk assessments
- Surveillance that is fit-for-purpose at the humananimalenvironmental interface
- Evaluate based on JEE and other indicators



2. Surveillance for zoonotic diseases and information sharing: balanced solutions...2/3



2. Surveillance for zoonotic diseases and information sharing...3/3



3. Coordinated investigation and response

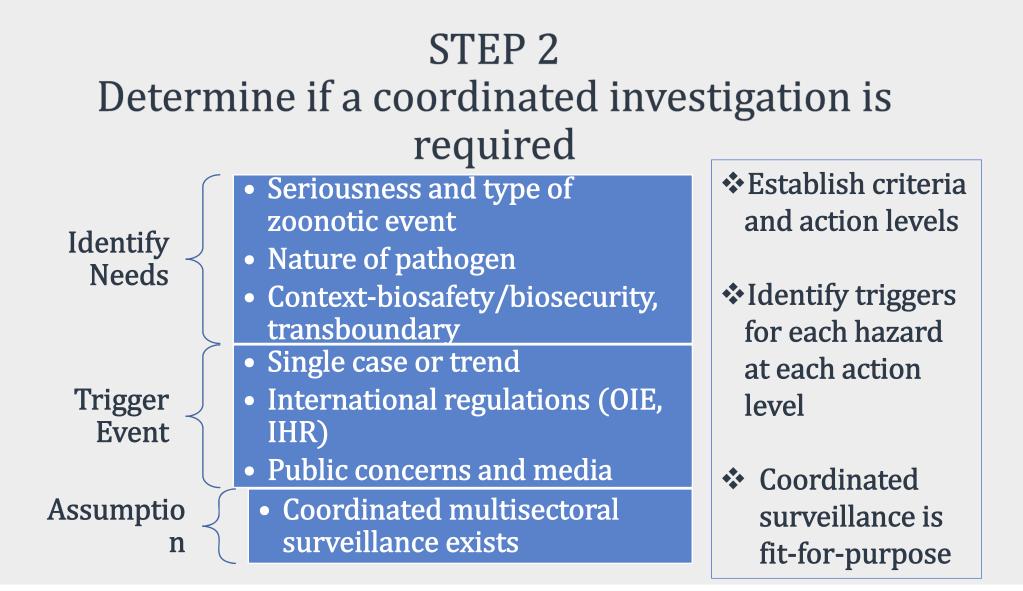


(FAO, OIE, WHO. 2019)

STEP 1 Clarify roles & responsibilities of relevant sectors

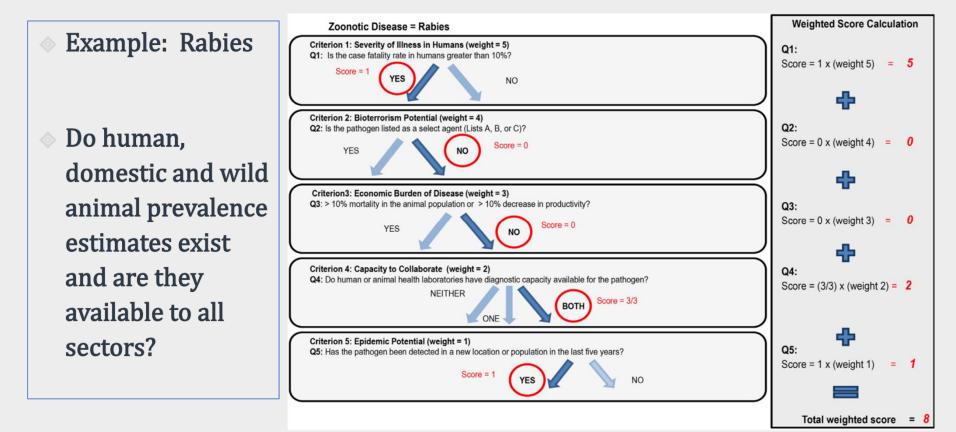


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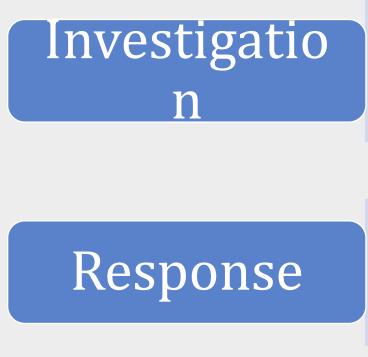


STEP 3 Use a decision tool to determine initiation & scale of response

Rist CL, Arriola CS, Rubin C (2014) Prioritizing Zoonoses: A Proposed One Health Tool for Collaborative Decision-Making. PLoS ONE 9(10): e109986. doi:10.1371/journal.pone.0109986



STEP 4 COMMUNICATION: Develop coordinated investigation and response protocols...1/2



- Parallel coordinated investigations
- Clear communication and information sharing
- Training strategy
- Standard Operating Procedures
- Standardised data collection sharing and analysis
- Resource sharing
- Triggers defined for action
- Roles and responsibilities for coordinated investigation and response
- References to existing response plans
- Need for Incident Management System
- International coordination

STEP 4 COMMUNICATION: Develop multisectoral operational framework...2/2 Interministeri al coordination Response coordination

Technical subgroups

4. Joint risk assessment for zoonotic disease threats...1/3

Joint risk assessments (JRA) take a multisectoral, One Health approach and address risks at the human-animal-environment interface more effectively than RAs conducted by a single sector.

A JRA is:

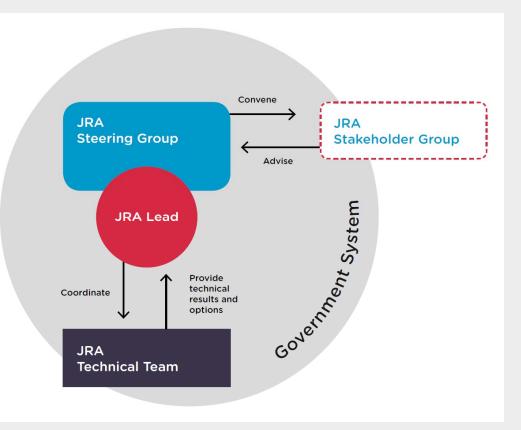
- Specific for an event or threat: specific to a particular priority zoonotic disease or zoonotic disease events or emergencies.
- Adaptable to country needs: adapted to fit the national context or existing mechanisms to encourage commitment from national ministries and other stakeholders.
- Must include risk governance as part of the overall approach (Avian Influenza Tripartite JRA, 2014-15)

Example: JRA organisational structure...2/3

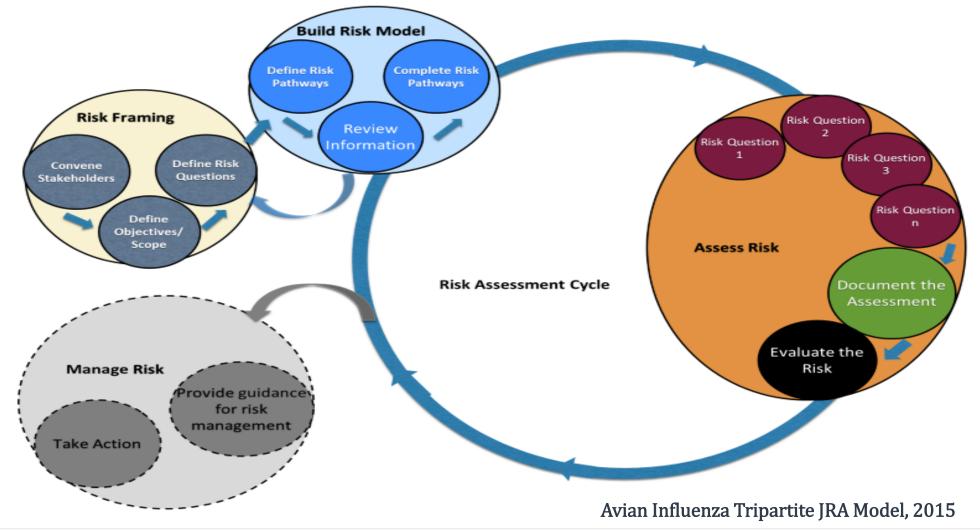
Components

- Lead
- Technical group
- Stakeholders

Communication and engagement



Example: Avian influenza JRA model...3/3



5. Risk reduction, risk communication and community engagement...1/2

Provide the public and other stakeholders, including responding organizations: accurate and timely information for a zoonotic disease threat.

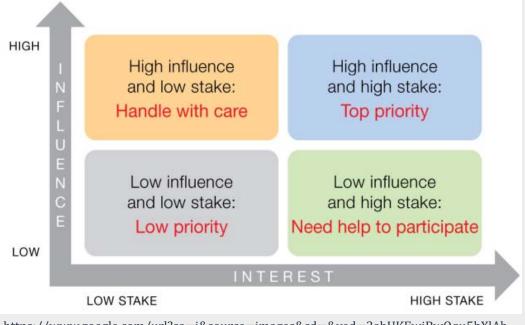
GOAL 2

GOAL 1

Provide people with the information they need to protect themselves and prevent harm to others allows them to reduce risks and contributes to an effective response.

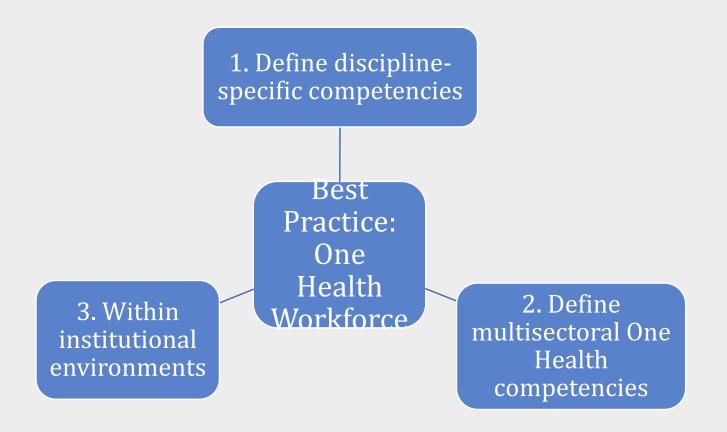
5. Risk reduction, risk communication and community engagement...2/2

- Jointly develop key messages to ensure consistency
- Adapt messages based on feedback and evaluation



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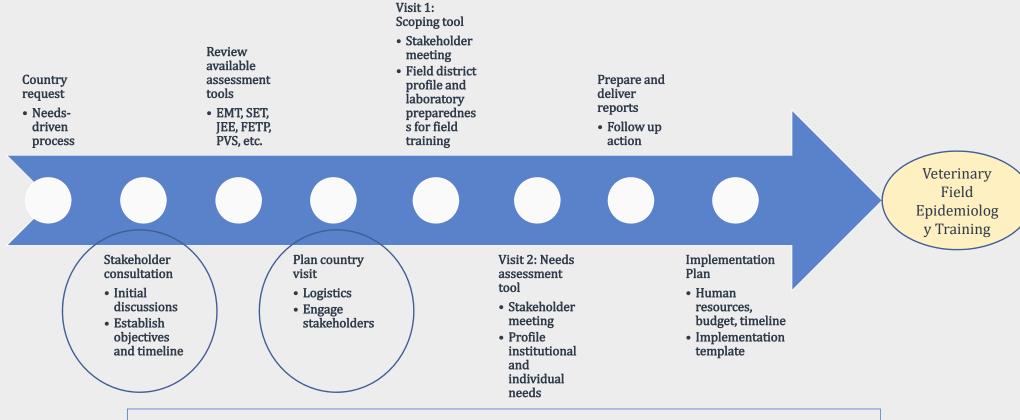
6. Workforce development...1/2



6. Workforce development...2/2

Stakeholder analysis Review capacities and needs across sectors Identify workforce gaps

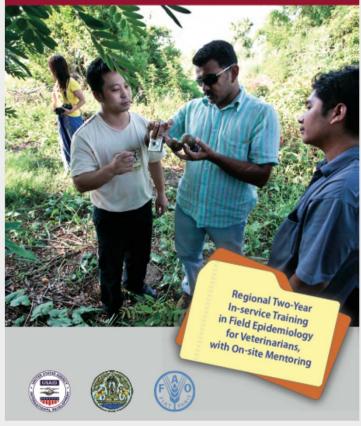
Example: Planning, Preparing and Implementing Veterinary Field Epidemiology Training (Frontline ISAVET and FAO Technical Advisory Group, 2019)



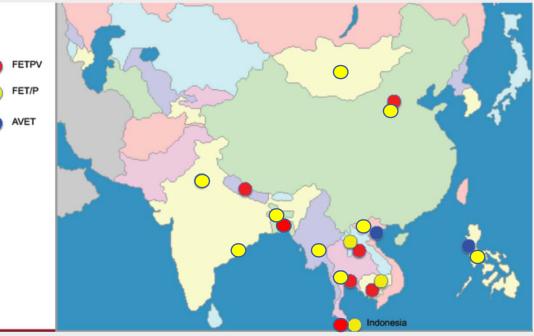
Engage public health and environment stakeholders

Because we learn through experience.

Field Epidemiology Training Program for Veterinarians



Veterinary Field Epidemiology Training in Asia (2009-Present)



Established Advanced FETPV: Thailand, China, Indonesia, Bangladesh (in progress) AVET: Philippines, Viet Nam



Frontline ISAVET: 14 countries in East, West and Central Africa

Frontline In Service Applied Epidemiology Training



Curriculum aligned with FETP

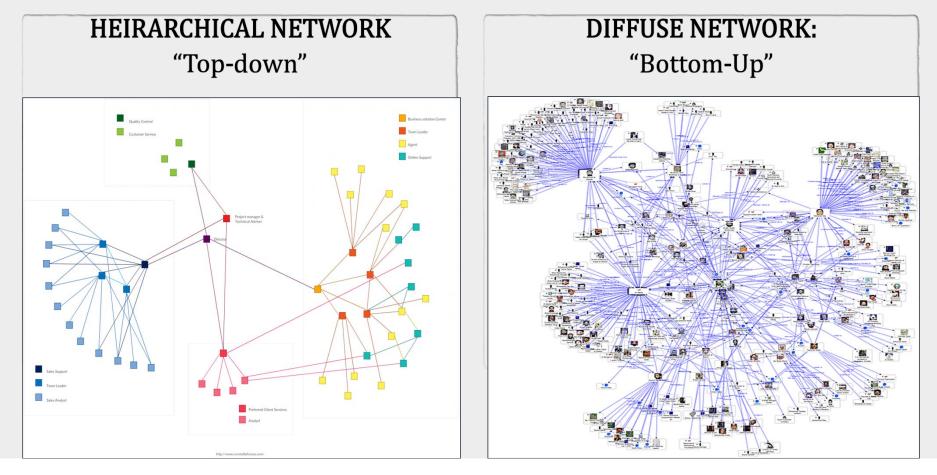
Multisectoral Collaboration for Capacity Development: Advanced FETPV and Frontline ISAVET

- Be persistent to establish an "activity-based" working relationship that will address country priorities and needs
- Aim for "win-win" scenarios to benefit each sector, discipline and for the individual
 - Over 50% of FETPV and Frontline ISAVET field reports focused on zoonotic diseases
 - Over 66% of Frontline ISAVET field reports focused on zoonotic diseases
- Stablish and nourish a range of career ladders across sectors
- Develop a joint training plan
- Our of bottom-up activities that drive institutional change

V. THE ROAD AHEAD



Build resilient veterinary field epidemiology networks



Guiding Principles for Effective Multisectoral Collaboration

- Initiate or build on existing national multisectoral OH coordination mechanisms (MCM) – But don't wait to act...
- Pilot activities based on national and local priorities
- Monitor and evaluate the collaborative activities
- Include the environment sector (natural resources)
- Challenge assumptions

- 1. Strategic planning and emergency preparedness
- 2. Surveillance for zoonotic diseases and information sharing
- 3. Coordinated investigation and response
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THANK YOU FOR YOUR ATTENTION

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